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EXAMINER
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HUYNH, PHUONG N

ART UNIT	PAPER NUMBER
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1644

12

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/006,163	Applicant(s) LAL ET AL.	
	Examiner " Neon" Phuong Huynh	Art Unit 1644	

-- Th MAILING DATE of this communication app ars on th cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 November 2002 .
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 11, 30-45, 56 and 58 is/are pending in the application.
- 4a) Of the above claim(s) 1, 30, 33, 35, 44, 45 and 56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 31-32, 34, 36-43, and 58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>7 &amp; 11</u> . | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Claims 1, 11, 30-45, 56 and 58 are pending.
2. The request of rejoining process claims upon allowance of product claims, in light of *In re Ochiai*, *In re Brouwer* is acknowledged. It is noted that the processes claim of making polyclonal (claim 36) and the process of making monoclonal antibody (claim 39) that bind to the polypeptide of SEQ ID NO: 1 are included in the product claims of Group II (Claims 11, 31-32, 34, 36-43 and 58).
3. Claims 1, 30, 33, 35, 44-45 and 56 stand withdrawn from further consideration by the examiner, 37 C.F.R. 1.142(b) as being drawn to non-elected inventions.
4. In view of the amendment filed 11/22/02, the following rejections remain.
5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:  

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
6. Claims 11 and 36-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Verwoert *et al* (J Biotechnol 174: 2851-57, 1992; PTO 892).

Verwoert *et al* teach an antibody that binds to a fragment such as VTGASRGIGRGIA of a polypeptide such as Malonyl coenzyme A-Acyl carrier protein transacylase that has a stretch of contiguous amino acid residues identical to the claimed SEQ ID NO: 1 (See Fig 2, last full line, Fig 3, page 2853, in particular). Verwoert *et al* teach a method of preparing a polyclonal antibody comprising immunizing an animal such as a mouse with the reference polypeptide (See Production of Antibodies and Immunodetection, in particular). While the reference is silent that the reference polypeptide fragment has the functional properties of has CoA dehydrogenase activity, the reference antibody has the specificity of the claimed antibody and the functional properties would be an inherent property of the polypeptide to which the antibody binds. Therefore the claimed antibody appears to be the same as the prior art antibody. Since the Patent

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Office does not have the facilities for examining and comparing the antibodies of the instant invention to those of the prior art, the burden is on applicant to show that the prior art antibody is different from the claimed antibody. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977). Thus, the reference teachings anticipate the claimed invention.

Applicants' arguments filed 11/22/02 have been fully considered but are not found persuasive.

Applicants' position is that (1) while it may be true that the antibodies taught by Verwoert et al could possibly bind to SEQ ID NO: 1 or a variant or a fragment of SEQ ID NO: 1, the binding would not be specific. (2) the specification discloses various immunoassays may be used for screening to identify antibodies having the desired specificity, such as measuring complex formation between HSCD and its specific antibody.

However, Verwoert et al teach an antibody that binds to a fragment of SEQ ID NO: 1 such as VTGASRGIGRGIA. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., measuring complex formation between HSCD and its specific antibody) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 103(a) that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering Patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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9. Claims 11, 31, 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verwoert *et al* (J Biotechnol 174: 2851-57, 1992; PTO 892) in view of US Pat No. 6,180,370B, filed June 1995; PTO 892).

The teachings of Verwoert *et al* have been discussed supra. Verwoert *et al* further teach the reference polypeptide is a temperature labile malonyl CoA ACP transacylase that plays a role in transferring the malonyl and/or acetyl group in the biosynthesis of polypeptides (See page 2855, Discussion, in particular) Verwoert *et al* teach the reference antibody is useful for immunodetection (See page 2853, column 1, in particular).

The claimed invention in claim 31 differs from the reference only by the recitation that the antibody is a chimeric antibody, or a humanized antibody.

The claimed invention in claim 42 differs from the reference only by the recitation that screening a Fab expression library produces the antibody.

The claimed invention in claim 43 differs from the reference only by the recitation that screening a recombinant immunoglobulin library produces the antibody.

The '370 patent teaches a method of producing chimeric antibodies (See column 55 lines 25-59; column 59, lines 65, in particular) and humanized antibodies (See column 44 line 33; column 68 lines 8-44, in particular) by screening a Fab expression library or a recombinant immunoglobulin library. The reference chimeric antibody comprises a variable region of an antibody and a human immunoglobulin constant region. The '370 patent further teaches that the chimeric humanized immunoglobulins (antibodies) specifically reactive with strong affinity to a predetermined antigen and remain nonimmunogenic in humans yet be easily and economically produced in a manner suitable for therapeutic formulation and other uses (See column 2, lines 29-34, in particular).

Therefore, it would be been obvious to one having ordinary skill in the art at the time the invention was made to produce chimeric antibody or humanized antibody as taught by the '370 patent that binds specifically to the polypeptide fragment as taught by Verwoert *et al*. From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

One having ordinary skill in the art at the time the invention was made would have been motivated to do this because the '370 patent teaches that the chimeric humanized immunoglobulins (antibodies) specifically reactive with strong affinity to a predetermined antigen and remain nonimmunogenic in humans yet be easily and economically produced in a manner

suitable for therapeutic formulation and other uses (See column 2, lines 29-34, in particular). Verwoert *et al* teach the reference antibody to the reference polypeptide is useful for immunodetection (See page 2853, column 1, Discussion, in particular).

Applicant's arguments filed 11/22/02 have been fully considered but are not found persuasive.

Applicant's position is that (1) while it may be true that the antibodies taught by Verwoert *et al* could possibly bind to SEQ ID NO: 1 or a variant or a fragment of SEQ ID NO: 1, the binding would not be specific. (2) the specification discloses various immunoassays may be used for screening to identify antibodies having the desired specificity, such as measuring complex formation between HSCD and its specific antibody. (3) all claim limitation must be taught or suggest by the prior art.

In response to applicant's argument that all claim limitation must be taught or suggest by the prior art, Verwoert *et al* teach an antibody that binds to a fragment of SEQ ID NO: 1 such as VTGASRGIGRGIA. The claimed invention in claim 31 differs from the reference only by the recitation that the antibody is a chimeric antibody, or a humanized antibody.

The claimed invention in claim 42 differs from the reference only by the recitation that screening a Fab expression library produces the antibody.

The claimed invention in claim 43 differs from the reference only by the recitation that screening a recombinant immunoglobulin library produces the antibody.

The '370 patent teaches a method of producing chimeric antibodies (See column 55 lines 25-59; column 59, lines 65, in particular) and humanized antibodies (See column 44 line 33; column 68 lines 8-44, in particular) by screening a Fab expression library or a recombinant immunoglobulin library. The reference chimeric antibody comprises a variable region of an antibody and a human immunoglobulin constant region. The '370 patent further teaches that the chimeric humanized immunoglobulins (antibodies) specifically reactive with strong affinity to a predetermined antigen and remain non immunogenic in humans yet be easily and economically produced in a manner suitable for therapeutic formulation and other uses (See column 2, lines 29-34, in particular).

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., measuring complex formation between HSCD and its specific antibody) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the

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specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

10. Claims 11 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verwoert *et al* (J Biotechnol 174: 2851-57, 1992; PTO 892) in view of US Pat No. 4,946,778 (Aug 1990, PTO 892).

The teachings of Verwoert *et al* have been discussed supra.

The claimed invention in claim 31 differs from the reference only by the recitation that the antibody is a single chain antibody.

The '778 patent teaches a method of producing single chain antibody comprising a variable region of any antibody or a polypeptide fragment (See column 29, lines 25 bridging column 30, lines 1-20, in particular). The advantages of a single chain antibody are small size, greater stability, significantly reduced cost and could be engineered to be highly antigenic and yet reduce the body's immunologic reaction and thus increase the safety and efficacy of the therapeutic application (See column 3, lines 33-48, in particular).

Therefore, it would be been obvious to one having ordinary skill in the art at the time the invention was made to make single chain antibody as taught by the '778 patent that binds specifically to the polypeptide fragment as taught by the Verwoert *et al*. From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

One having ordinary skill in the art at the time the invention was made would have been motivated to do this because the '778 patent teaches the advantages of a single chain antibody are small size, greater stability, significantly reduced cost and could be engineered to be highly antigenic and yet reduce the body's immunologic reaction and thus increase the safety and efficacy of the therapeutic application (See column 3, lines 33-48, in particular).

Applicants' arguments filed 11/22/02 have been fully considered but are not found persuasive.

Applicant's position is that (1) while it may be true that the antibodies taught by Verwoert *et al* could possibly bind to SEQ ID NO: 1 or a variant or a fragment of SEQ ID NO: 1, the binding would not be specific. (2) the specification discloses various immunoassays may be used for screening to identify antibodies having the desired specificity, such as measuring

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complex formation between HSCD and its specific antibody. (3) all claim limitation must be taught or suggest by the prior art.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., measuring complex formation between HSCD and its specific antibody) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that all claim limitation must be taught or suggest by the prior art, Verwoert et al teach an antibody that binds to a fragment of SEQ ID NO: 1 such as VTGASRGIGRGIA. The claimed invention in claim 42 differs from the reference only by the recitation that screening a Fab expression library produces the antibody.

The claimed invention in claim 43 differs from the reference only by the recitation that screening a recombinant immunoglobulin library produces the antibody.

The '370 patent teaches a method of producing chimeric antibodies (See column 55 lines 25-59; column 59, lines 65, in particular) and humanized antibodies (See column 44 line 33; column 68 lines 8-44, in particular) by screening a Fab expression library or a recombinant immunoglobulin library. The reference chimeric antibody comprises a variable region of an antibody and a human immunoglobulin constant region. The '370 patent further teaches that the chimeric humanized immunoglobulins (antibodies) specifically reactive with strong affinity to a predetermined antigen and remain nonimmunogenic in humans yet be easily and economically produced in a manner suitable for therapeutic formulation and other uses (See column 2, lines 29-34, in particular).

11. Claims 11, 31-32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verwoert *et al* (J Bioteriol 174: 2851-57, 1992; PTO 892) in view of Harlow *et al* (in Antibodies a Laboratory Manual, 1988, Cold Spring harbor laboratory publication, Cold Spring Harbor, NY, pages 319-356, and 626-629).

The teachings of Verwoert *et al* have been discussed supra.

The claimed invention as recited in claim 31 differs from the reference only by the recitation that the antibody is a Fab fragment, a F(ab')<sub>2</sub> fragment.



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The claimed invention as recited in claim 32 differs from the reference only by the recitation of a composition comprising said antibody and an acceptable excipient.

The claimed invention as recited in claim 34 differs from the reference only by the recitation the antibody is labeled.

Harlow *et al* teach a method of producing antibody fragment wherein the fragment is Fab or F(ab')<sub>2</sub> fragment (See page 626-629, in particular). Harlow *et al* teach that the problems of using multivalent antibodies on mammalian cells often will lead to capping and internalization of the antigen which can be overcome by using fragments of antibodies (See page 626 in particular). Harlow *et al* further teach labeling any antibody with various labels such as enzyme or FITC (See chapter 9, in particular) in a composition comprising an antibody and a carrier such as PBS (See page 354, in particular) or NaCl, which is a saline solution (See page 346, in particular) for various detection assays. The advantages of enzyme labeling are longer shelf life, and higher sensitivity while the advantages of fluorochrome label are long shelf life and good resolution in immunohistochemistry (See page 322, in particular).

Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to produce antibody fragment such as Fab or F(ab')<sub>2</sub> or to label any antibody as taught by Harlow *et al* with the polyclonal antibody that binds specific to a fragment comprises a contiguous amino acid residues of the claimed SEQ ID NO: 1 as taught by Verwoert *et al* or Harlow *et al*. From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

One having ordinary skill in the art would have been motivated to do this because Harlow *et al* teach antibody fragments can overcome the problem of capping and internalization of the antigen on mammalian cell when using multivalent antibodies (See page 626 in particular) and the labeled antibody can be used for various detection assays. The advantages of enzyme labeling are longer shelf life, higher sensitivity while the advantages of fluorochrome label are long shelf life and good resolution in immunohistochemistry (See page 322, in particular).

Applicants' arguments filed 11/22/02 have been fully considered but are not found persuasive.

Applicant's position is that (1) while it may be true that the antibodies taught by Verwoert *et al* could possibly bind to SEQ ID NO: 1 or a variant or a fragment of SEQ ID NO: 1, the binding would not be specific. (2) the specification discloses various immunoassays may be

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used for screening to identify antibodies having the desired specificity, such as measuring complex formation between HSCD and its specific antibody. (3) all claim limitation must be taught or suggest by the prior art.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., measuring complex formation between HSCD and its specific antibody) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that all claim limitation must be taught or suggest by the prior art, Verwoert et al teach an antibody that binds to a fragment of SEQ ID NO: 1 such as VTGASRGIGRGIA. The claimed invention as recited in claim 31 differs from the reference only by the recitation that the antibody is a Fab fragment, a F(ab')<sub>2</sub> fragment.

The claimed invention as recited in claim 32 differs from the reference only by the recitation of a composition comprising said antibody and an acceptable excipient.

The claimed invention as recited in claim 34 differs from the reference only by the recitation the antibody is labeled.

Harlow *et al* teach a method of producing antibody fragment wherein the fragment is Fab or F(ab')<sub>2</sub> fragment (See page 626-629, in particular). Harlow *et al* teach that the problems of using multivalent antibodies on mammalian cells often will lead to capping and internalization of the antigen which can be overcome by using fragments of antibodies (See page 626 in particular). Harlow *et al* further teach labeling any antibody with various labels such as enzyme or FITC (See chapter 9, in particular) in a composition comprising an antibody and a carrier such as PBS (See page 354, in particular) or NaCl, which is a saline solution (See page 346, in particular) for various detection assays. The advantages of enzyme labeling are longer shelf life, and higher sensitivity while the advantages of fluorochrome label are long shelf life and good resolution in immunohistochemistry (See page 322, in particular).

12. Claims 11 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verwoert *et al* (J Bioteriol 174: 2851-57, 1992; PTO 892) in view of Harlow *et al* (in Antibodies a Laboratory Manual, 1988, Cold Spring harbor laboratory publication, Cold Spring Harbor, NY, pages 139-149).

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The teachings of Verwoert *et al* have been discussed supra.

The claimed invention as recited in claim 38 differs from the reference only by the recitation a composition comprising the polyclonal antibody and a suitable carrier.

The claimed invention as recited in claim 39 differs from the reference only by the recitation a method of making monoclonal antibody comprising immunizing an immunogenic fragment thereof.

The claimed invention as recited in claim 40 differs from the reference only by the recitation that a composition comprising the monoclonal antibody produced by the method of claim 39.

The claimed invention as recited in claim 41 differs from the reference only by the recitation a composition comprising the monoclonal antibody and a suitable carrier.

Harlow *et al* teach a method of producing polyclonal antibody using rabbit for practical reasons because they are easy to keep and handle and antibody produced are well characterized and easily purified (See page 93, in particular). Harlow *et al* further teach a method of producing monoclonal antibody (See page 139-149, in particular) and the advantages of monoclonal antibodies are their specificity of binding, their homogeneity and their ability to be produced in unlimited quantities (See page 141, last full paragraph, in particular). Harlow *et al* further teach labeling any antibody with various label such as enzyme or FITC (See chapter 9, in particular) in a composition comprising an antibody and a carrier such as PBS (See page 354 in particular) or NaCl, which is a saline solution (See page 346) for various detection assays. The advantages of enzyme labeling are longer shelf life, higher sensitivity while the advantages of fluorochrome label are long shelf life and good resolution in immunohistochemistry (See page 322, in particular).

Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to produce monoclonal antibody as taught by Harlow *et al* with the polypeptide as taught by Verwoert *et al* for a composition comprising said antibody and a carrier such as PBS as taught by Harlow *et al*. From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

One having ordinary skill in the art would have been motivated to make antibody fragment because Harlow *et al* teach that the advantages of monoclonal antibodies are their

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specificity of binding, their homogeneity and their ability to be produced in unlimited quantities (See page 141, last full paragraph, in particular).

Applicants' arguments filed 11/22/02 have been fully considered but are not found persuasive.

Applicant's position is that (1) while it may be true that the antibodies taught by Verwoert et al could possibly bind to SEQ ID NO: 1 or a variant or a fragment of SEQ ID NO: 1, the binding would not be specific. (2) the specification discloses various immunoassays may be used for screening to identify antibodies having the desired specificity, such as measuring complex formation between HSCD and its specific antibody. (3) all claim limitation must be taught or suggest by the prior art.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., measuring complex formation between HSCD and its specific antibody) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that all claim limitation must be taught or suggest by the prior art, Verwoert et al teach an antibody that binds to a fragment of SEQ ID NO: 1 such as VTGASRGIGRGIA. The claimed invention as recited in claim 38 differs from the reference only by the recitation a composition comprising the polyclonal antibody and a suitable carrier.

The claimed invention as recited in claim 39 differs from the reference only by the recitation a method of making monoclonal antibody comprising immunizing an immunogenic fragment thereof.

The claimed invention as recited in claim 40 differs from the reference only by the recitation that a composition comprising the monoclonal antibody produced by the method of claim 39.

The claimed invention as recited in claim 41 differs from the reference only by the recitation a composition comprising the monoclonal antibody and a suitable carrier.

Harlow *et al* teach a method of producing polyclonal antibody using rabbit for practical reasons because they are easy to keep and handle and antibody produced are well characterized and easily purified (See page 93, in particular). Harlow *et al* further teach a method of producing monoclonal antibody (See page 139-149, in particular) and the advantages of monoclonal

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antibodies are their specificity of binding, their homogeneity and their ability to be produced in unlimited quantities (See page 141, last full paragraph, in particular). Harlow *et al* further teach labeling any antibody with various label such as enzyme or FITC (See chapter 9, in particular) in a composition comprising an antibody and a carrier such as PBS (See page 354 in particular) or NaCl, which is a saline solution (See page 346) for various detection assays. The advantages of enzyme labeling are longer shelf life, higher sensitivity while the advantages of fluorochrome label are long shelf life and good resolution in immunohistochemistry (See page 322, in particular).

13. The following new grounds of rejection are necessitated by the amendment filed 11/22/02.
14. The following is a quotation of the first paragraph of 35 U.S.C. 112:  
The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
15. Claims 11, 31-32, 34, 36-43 and 58 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling only for (1) an isolated antibody which specifically binds to a polypeptide comprising the amino acid sequence of SEQ ID NO: 1 or an immunogenic fragment thereof wherein the fragment has CoA dehydrogenase activity, (2) a composition comprising said antibody and an acceptable excipient for competitive binding or immunoradiometric assays or for detection assays, (3) the said composition wherein the antibody is labeled, (4) a method of preparing a polyclonal, or a monoclonal antibody with the specificity of the antibody that binds to a polypeptide comprising the amino acid sequence of SEQ ID NO: 1, (5) a polyclonal or a monoclonal antibody produced by said method, (6) a composition comprising said polyclonal or monoclonal antibody, and a suitable carrier, and (7) the said antibody wherein the antibody is produced by screening a Fab expression library, or recombinant immunoglobulin library, **does not** reasonably provide enablement for (1) *any* isolated antibody such as chimeric, single chain, Fab fragment, F(ab')<sub>2</sub> fragment, humanized antibody monoclonal, polyclonal which specifically binds to *any* polypeptide "comprising" any fragment of a polypeptide consisting of the amino acid sequence of SEQ ID NO: 1, wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide of SEQ ID NO: 1, (2) *any* antibody such as chimeric, single chain, Fab fragment, F(ab')<sub>2</sub> fragment, humanized antibody which specifically binds to any polypeptide

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comprising any naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO: 1, wherein said polypeptide has CoA dehydrogenase activity, and wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide at least 90% identical to SEQ ID NO: 1, (3) *any* antibody such as chimeric, single chain, Fab fragment, F(ab')<sub>2</sub> fragment, humanized antibody which specifically binds to a polypeptide "comprising" any "fragment" of a polypeptide, such as any fragment "comprises" at least 15 contiguous amino acid residues of SEQ ID NO: 1, (4) a composition comprising any antibody mentioned above and an acceptable excipient, (5) a composition comprising any antibody mentioned above wherein the antibody is labeled, (6) a method preparing *any* polyclonal antibody or monoclonal antibody with the specificity of binding to any polypeptide "comprising" any fragment of a polypeptide consisting of the amino acid sequence of SEQ ID NO: 1, wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide of SEQ ID NO: 1, *any* polypeptide comprising any naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO: 1, wherein said polypeptide has CoA dehydrogenase activity, and wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide at least 90% identical to SEQ ID NO: 1, *any* polypeptide "comprising" any "fragment" of a polypeptide, such as any fragment "comprises" at least 15 contiguous amino acid residues of SEQ ID NO: 1, (7) any isolated antibody which specifically binds to any immunogenic fragment of a polypeptide consisting of the amino acid sequence of SEQ ID NO: 1, wherein said fragment "comprises" at least 15 contiguous amino acid residues of SEQ ID NO: 1 for treating any immune disorder such as cancer. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in **scope** with these claims.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the lack of sufficient working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention. The specification disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without an undue amount of experimentation.

The specification discloses only antibody that specifically binds to a polypeptide comprising the amino acid sequence of SEQ ID NO: 1, a composition comprising said antibody or a labeled antibody that binds to a polypeptide comprising the amino acid sequence of SEQ ID NO: 1 for diagnostic and detection assays. The specification on page 14 discloses a “variant” of human short chain dehydrogenase (HSCD) is any amino acid sequence that is altered by one or more amino acids such as substitution, insertion and deletion (See page 14 of specification, second full paragraph).

The specification does not teach how to make any antibody mentioned above that binds to any polypeptide “comprising” any fragment of a polypeptide consisting of the amino acid sequence of SEQ ID NO: 1 because the term “comprising” is open-ended. It expands the polypeptide fragment to which the antibody binds to include additional amino acid residues at either or both ends. There is insufficient guidance as to the binding specificity of the claimed antibody and the immunogen used by applicant to generate antibody that would bind specifically not only to SEQ ID NO: 1, but also to a polypeptide having undisclosed amino acids at either or both ends. With regard to antibody that binds to a polypeptide having only 90% identity to SEQ ID NO: 1, 90% identity is 10% difference in SEQ ID NO: 1, which is equivalent to having 31 amino acids difference (SEQ ID NO 1 which has 313 amino acids and multiply that by 10%) in any region of SEQ ID NO: 1. The specification does not provide guidance as to which one or more amino acids of SEQ ID NO: 1 is altered such as substitution, insertion and deletion and whether the resulting polypeptide variant has biological function.

Abaza *et al* teach that even a single amino acid substitution outside the antigenic site can exert drastic effects on the reactivity (binding) of a protein with monoclonal antibody against the site (See abstract, in particular).

Kuby *et al*, of record, teach that immunizing a peptide comprising a contiguous amino acid sequence of 8 amino acid residues (fragment) or a protein derived from a full-length polypeptide may result in **antibody specificity** that differs from antibody specificity directed against the native full-length polypeptide, let alone a polypeptide with 10% difference compared to SEQ ID NO: 1 or any polypeptide having undisclosed amino acid at either or both ends. In the absence of guidance as to the specific amino acid residues (the antigenic determinant) used by applicant for immunization and the specific epitope of SEQ ID NO: 1, or fragment thereof to which the antibody binds, it is unpredictable which antibody generated from the full length polypeptide of SEQ ID NO: 1 would bind specifically to an undisclosed polypeptide having

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addition, deletion, and insertion or fragment of SEQ ID NO: 1. Even if the fragment is limited to consisting of 15 contiguous amino acid residues of SEQ ID NO: 1, the antibody generated from said fragment may not bind to the full-length polypeptide of SEQ ID NO: 1 as taught by Kubly et al.

Ngo *et al* teach that the amino acid positions within the polypeptide/protein that can tolerate change such as conservative substitution or no substitution, addition or deletion which are critical to maintain the protein's structure/function will require guidance (See Ngo et al., 1994, The Protein Folding Problem and Tertiary Structure Prediction, pp. 492-495).

With regard to antibody which binds to a polypeptide "comprising" any "fragment" of a polypeptide, such as any fragment "comprises" at least 15 contiguous amino acid residues of SEQ ID NO: 1 and wherein the antibody specifically binds to an epitope of the fragment, the term "comprising" is open-ended. It expands the fragment to include additional amino acid residues at either or both ends. There is insufficient guidance as to the structure of the fragment to which the antibody binds, much less which epitope within the fragment having additional undisclosed amino acid residues at either or both ends. Further, there are no working examples demonstrating such antibody as recited in claim 11 ever been made. Since the binding specificity of the antibody is not enable, it follows that the composition comprising any antibody such as chimeric, single chain, Fab fragment, F(ab')<sub>2</sub> fragment, humanized antibody monoclonal, polyclonal is not enabled. It also follows that any labeled antibody mentioned above is not enabled. It also follows that the method of making any polyclonal and monoclonal antibody is not enabled because the specific amino acid sequence of the immunogen to make said antibody is not disclosed. It also follows that any antibody produced by a Fab expression library or by screening a recombinant immunoglobulin library is not enabled because the fragment "comprises" the undisclosed amino acid residues at either or both ends.

The '370 patent teaches that the inherent problem with chimeric antibody has been a loss of affinity for the antigen, which means more antibody will have to be injected into a patient at higher cost and greater risk of adverse effects such as serum sickness (See column 2 lines 12-27, in particular). In the absence of *in vivo* working examples, it is unpredictable for the following reasons: (1) the antibody may be inactivated before producing an effect, i.e. such as inherently short half-life of the antibody; (2) the antibody may not reach the target area; and (3) other functional properties, known or unknown, may make the antibody unsuitable for *in vivo* therapeutic use, i.e. such as serum sickness which prohibitive to the use of antibody for such



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treatment. Therefore, it would require undue experimentation of one skilled in the art to practice the claimed invention. See page 1338, footnote 7 of *Ex parte Aggarwal*, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

In *re wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988), the decision of the court indicates that the more unpredictable the area is, the more specific enablement is necessary. In view of the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims, it would take an undue amount of experimentation for one skilled in the art to practice the claimed invention.

Applicants' arguments filed 11/22/02 have been fully considered but are not found persuasive.

Applicants' position is that (1) variants of SEQ ID NO: 1 are disclosed; (2) the claimed antibodies are specific for the particular polypeptides, polypeptide variants and/or polypeptide fragments to which they specifically bind; (3) one of ordinary skill in the art could routinely use the disclosed assay to identify polypeptide variants recited by the claims and could routinely make and/or use antibodies which specifically bind to these polypeptide variant; (4) claim 11 has been amended such that it recites antibodies which bind to an epitope of SEQ ID NO: 1, or a polypeptide at least 90% identical to SEQ ID NO: 1 or which bind to an epitope of a fragment of a polypeptide consisting of SEQ ID NO: 1 and (5) the Office Action has failed to provide any reason why one would doubt that the guidance provide by the present specification to make and use the claimed antibodies.

Contrary to applicant's assertion that variant of SEQ ID NO: 1 are disclosed, the mere statement of 90% identity to SEQ ID NO: 1 in the specification provides insufficient guidance to enable one ordinary skill to make and use the claimed polypeptide to which the antibody bind because (1) the specific amino acid residues (the antigenic determinant) used by applicant for immunization is not disclosed and it is unpredictable which antibody generated from the full length polypeptide of SEQ ID NO: 1 would bind specifically to a polypeptide having addition, deletion, and insertion that is only 90% identical to SEQ ID NO: 1 or a fragment of SEQ ID NO: 1 "comprises" any additional undisclosed amino acid residues at either or both ends as long as the fragment contains at least 15 contiguous amino acid residues of SEQ ID NO: 1; (2) Even if the fragment is limited to consisting of 15 contiguous amino acid residues of SEQ ID NO: 1, the antibody generated from said fragment may not bind to the full-length polypeptide of SEQ ID

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NO: 1 as taught by Kuby *et al.* (3) Abaza *et al* teach that even a single amino acid differences would affect binding specificity of the monoclonal antibody (See abstract, in particular). (4) There are no working examples in the specification demonstrating such antibody as recited in claim 11 ever been made, much less binding specifically to *any* “epitope” of a fragment of SEQ ID NO: 1 having undisclosed amino acid residues at either or both ends of the fragment or a polypeptide having 31 amino acids differences or binding specifically to any epitope of a polypeptide having only 90% identity to SEQ ID NO: 1. Abaza *et al* teach that even a single amino acid substitution outside the antigenic site can exert drastic effects on the reactivity (binding) of a protein with monoclonal antibody against the site (See abstract, in particular). Kuby *et al* teach that immunizing a peptide comprising a contiguous amino acid sequence of 8 amino acid residues (fragment) or a protein derived from a full-length polypeptide may result in **antibody specificity** that differs from antibody specificity directed against the native full-length polypeptide, let alone a polypeptide with 10% difference compared to SEQ ID NO: 1 or any polypeptide having undisclosed amino acid at either or both ends. In the absence of guidance as to the specific amino acid residues (the antigenic determinant) used by applicant for immunization and the specific epitope of SEQ ID NO: 1, or fragment thereof to which the antibody binds, it is unpredictable which antibody generated from the full length polypeptide of SEQ ID NO: 1 would bind specifically to an undisclosed polypeptide having addition, deletion, and insertion or fragment of SEQ ID NO: 1. It is equally unpredictable which antibody generated from a polypeptide having extra undisclosed amino acids at either or both end would bind specifically to SEQ ID NO: 1 or a polypeptide having 90% identity to SEQ ID NO: 1.

For these reasons, it would take undue amount of experimentation for one ordinary skill in the art to identify polypeptide variants recited by the claims, much less making antibodies which specifically bind to these polypeptide variant.

In response to Applicant’s argument that claim 11 has been amended, Claim 11 still recites *any* isolated antibody which specifically binds to *any* polypeptide “comprising” any “fragment” of a polypeptide consisting of the amino acid sequence of SEQ ID NO: 1, wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide of SEQ ID NO: 1, (2) *any* polypeptide comprising any naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO: 1, wherein said polypeptide has CoA dehydrogenase activity, and wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide at least 90% identical to SEQ ID NO: 1, (3) *any* polypeptide “comprising” any

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“fragment” of a polypeptide, such as any fragment “comprises” at least 15 contiguous amino acid residues of SEQ ID NO: 1. The term “comprising” is open-ended. It expands the fragment to which the antibody to include additional amino acid residues at either or both ends. There is insufficient guidance as to the binding specificity of the claimed antibody and the immunogen used by applicant to generate antibody that would bind specifically not only to SEQ ID NO: 1, but also to a polypeptide having undisclosed amino acids at either or both ends. There is insufficient guidance as to the structure of the fragment to which the antibody binds much less which epitope within the fragment having additional undisclosed amino acid residues at either or both ends. For these reasons, it would take an undue amount of experimentation for one skilled in the art to practice the claimed invention.

16. Claims 11, 31-32, 34, 36-43 and 58 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

The specification does not reasonably provide a **written description** of (1) *any* isolated antibody such as chimeric, single chain, Fab fragment, F(ab')<sub>2</sub> fragment, humanized antibody monoclonal, polyclonal which specifically binds to *any* polypeptide “comprising” any fragment of a polypeptide consisting of the amino acid sequence of SEQ ID NO: 1, wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide of SEQ ID NO: 1, (2) *any* antibody such as chimeric, single chain, Fab fragment, F(ab')<sub>2</sub> fragment, humanized antibody which specifically binds to any polypeptide comprising any naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO: 1, wherein said polypeptide has CoA dehydrogenase activity, and wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide at least 90% identical to SEQ ID NO: 1, (3) *any* antibody such as chimeric, single chain, Fab fragment, F(ab')<sub>2</sub> fragment, humanized antibody which specifically binds to a polypeptide “comprising” any “fragment” of a polypeptide, such as any fragment “comprises” at least 15 contiguous amino acid residues of SEQ ID NO: 1, (4) a composition comprising any antibody mentioned above and an acceptable excipient, (5) a composition comprising any antibody mentioned above wherein the antibody is labeled, (6) a method preparing *any* polyclonal antibody or monoclonal antibody with the specificity of binding to any polypeptide “comprising” any fragment of a polypeptide consisting of the amino acid

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sequence of SEQ ID NO: 1, wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide of SEQ ID NO: 1, *any* polypeptide comprising any naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO: 1, wherein said polypeptide has CoA dehydrogenase activity, and wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide at least 90% identical to SEQ ID NO: 1, *any* polypeptide “comprising” any “fragment” of a polypeptide, such as any fragment “comprises” at least 15 contiguous amino acid residues of SEQ ID NO: 1, (7) any isolated antibody which specifically binds to any immunogenic fragment of a polypeptide consisting of the amino acid sequence of SEQ ID NO: 1, wherein said fragment “comprises” at least 15 contiguous amino acid residues of SEQ ID NO: 1 for treating any immune disorder such as cancer.

The specification discloses only antibody that specifically binds to a polypeptide comprising the amino acid sequence of SEQ ID NO: 1, a composition comprising said antibody for diagnostic and detection assays. The specification on page 14 discloses a “variant” of human short chain dehydrogenase (HSCD) is any amino acid sequence that is altered by one or more amino acids such as substitution, insertion and deletion (See page 14 of specification, second full paragraph).

With the exception of the specific antibody that binds to the specific polypeptide mentioned above, there is insufficient written description about the structure of *any* fragment “comprises” at least *any* 15 contiguous amino acid sequence residues of SEQ ID NO: 1 because the term “comprising” is open-ended. It expands the fragment to include additional amino acids at either or both ends. There is inadequate written description about the undisclosed amino acids at either or both ends of the fragment, much less about the epitope to which the antibody binds in the undisclosed fragment. Further, there is insufficient written description about the structure such as the specific amino acid sequence of the “epitope” or the antigenic determinant of the fragment, or the “epitope” of a polypeptide of SEQ ID NO: 1, or the “epitope” of a polypeptide at least 90% identical to SEQ ID NO: 1 to which the antibody binds.

Given the lack of a written description of any additional antibody that binds to SEQ ID NO: 1, variants of SEQ ID NO: 1 and fragment thereof, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus. Thus, Applicant was not in possession of the claimed genus. See *University of California v. Eli Lilly and Co.* 43 USPQ2d 1398. Applicant is directed to the Revised Interim Guidelines for

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the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

Applicants' arguments filed 11/22/02 have been fully considered but are not found persuasive.

Applicants' position is that (1) claim 11 has been amended such that it recites antibodies which bind to an epitope of SEQ ID NO: 1, or a polypeptide at least 90% identical to SEQ ID NO: 1 or which bind to an epitope of a fragment of a polypeptide consisting of SEQ ID NO: 1, (2) the specification provides an adequately written description of the claimed antibodies which specifically bind to the "variants", and fragment of SEQ ID NO: 1.

In response to Applicant's argument that claim 11 has been amended, Claim 11 still recites *any* isolated antibody which specifically binds to *any* polypeptide "comprising" any "fragment" of a polypeptide consisting of the amino acid sequence of SEQ ID NO: 1, wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide of SEQ ID NO: 1, (2) *any* polypeptide comprising any naturally occurring amino acid sequence at least 90% identical to the amino acid sequence of SEQ ID NO: 1, wherein said polypeptide has CoA dehydrogenase activity, and wherein the antibody specifically binds to *any* epitope of the fragment of a polypeptide at least 90% identical to SEQ ID NO: 1, (3) *any* polypeptide "comprising" any "fragment" of a polypeptide, such as any fragment "comprises" at least 15 contiguous amino acid residues of SEQ ID NO: 1. The term "comprising" is open-ended. It expands the fragment to which the antibody to include additional amino acid residues at either or both ends. There is insufficient guidance as to the binding specificity of the claimed antibody and the immunogen used by applicant to generate antibody that would bind specifically not only to SEQ ID NO: 1, but also to a polypeptide having undisclosed amino acids at either or both ends. There is inadequate written description about the undisclosed amino acids at either or both ends of the fragment, much less about the epitope to which the antibody binds in the undisclosed fragment. Further, there is insufficient written description about the structure such as the specific amino acid sequence of the "epitope" or the antigenic determinant of the fragment, or the "epitope" of a polypeptide of SEQ ID NO: 1, or the "epitope" of a polypeptide at least 90% identical to SEQ ID NO: 1 to which the antibody binds, let alone the binding specificity of the claimed antibodies.

In response to item 2, the specification discloses only two polypeptide of SEQ ID NO: 1 and 3 (See sequence listing) and antibodies that bind specifically to said polypeptides. Given the lack of a written description of any additional "variants" and "fragment" of the polypeptide of

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SEQ ID NO: 1 to which the claimed antibodies bind, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus. Thus, Applicant was not in possession of the claimed genus. See *University of California v. Eli Lilly and Co.* 43 USPQ2d 1398. Applicant is directed to the Revised Interim Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

17. No claim is allowed.
18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to "Neon" Phuong Huynh whose telephone number is (703) 308-4844. The examiner can normally be reached Monday through Friday from 9:00 am to 6:00 p.m. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (703) 308-3973. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-0196.

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20. Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center telephone number is (703) 305-7401.

Phuong N. Huynh, Ph.D.

Patent Examiner

Technology Center 1600

February 10, 2003

  
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SUPERVISORY PATENT EXAMINER  
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